WHAT IS CLAIMED IS:

1.   A method for converting a sequence of electronically captured images into a sequence of modified images providing the appearance of images captured by a film reproduction system, the film reproduction system being of the type that includes a motion picture negative film printed onto a motion picture print film that is displayed, or a reversal motion picture system in which a reversal film is displayed, said method comprising the steps of:

a) electronically capturing a sequence of images, resulting in electronically captured image data;

b) transforming the electronically captured image data into linearized exposure data, resulting in neutral-corrected electronically captured images;

c) transforming the neutral-corrected electronically captured images with a linear function that emulates a film exposure of the film reproduction system, resulting in exposure-corrected electronically captured images;

d) transforming the exposure-corrected electronically captured images with a non-linear function that renders the exposure-corrected electronically captured images with a tone scale of the film reproduction system, resulting in tonescale-corrected electronically captured images; and

e) transforming the tonescale-corrected electronically captured images with a linear function that emulates a film color look provided by the film reproduction system, resulting in modified images that provide the appearance of an image captured with the film reproduction system, whereby the transformation steps are referenced to scanned film densities of a film used in the film reproduction system.

2.   The method as claimed in claim 1 wherein the step b) of transforming the electronically captured image data into linearized exposure data

includes reversing any electronic camera nonlinearities applied to the electronically captured image data.

3.   The method as claimed in claim 1 wherein the steps of a) electronically capturing a sequence of images, resulting in electronically captured image data, and b) transforming the electronically captured image data into linearized exposure data includes providing the linearized exposure data from an electronic camera that captured the sequence of motion images.

4.   The method as claimed in claim 1 further comprising the step of recording the modified images on film.

5.   The method as claimed in claim 1 further comprising the step of displaying the modified images with a display.

6.   The method as claimed in claim 5 in which the display is (a) an electro-optical display including at least one of a digital projector, a television display, a video projector, a liquid crystal display or a laser projector; (b) retinal projection or (c) an electro-optic mechanism.

7.   The method as claimed in claim 1 wherein the modified images are color-balanced before subsequent utilization by balancing a reference neutral to a predetermined scanner density value, resulting in modified images.

8.   The method as claimed in claim 7 further comprising the step of recording the modified images on film.

9.   The method as claimed in claim 7 further comprising the step of displaying the modified images on a display.

10.   The method as claimed in claim 9 in which the display is an electro-optical display including at least one of a digital projector, a television display, a video projector, a liquid crystal display or a laser projector.

11.   The method as claimed in claim 1 wherein the step b) of transforming the electronically captured image data into linearized exposure data is performed with a look up table that is determined according to the following steps:

electronically capturing a first image of a color chart with an electronic camera, resulting in electronic camera exposures;

removing the effect of any nonlinearities applied to the electronic camera exposures by the electronic capture device, resulting in corrected electronic camera exposures;

calculating a second image of the color chart with a film stock used in the film reproduction system, resulting in film densities corresponding to the second image;

converting the film densities into red, green and blue exposure values corresponding to the second image; and

generating a look up table that maps a neutral scale of the corrected electronic camera exposures to a neutral scale of the film exposures, thereby producing neutrally-corrected electronic camera exposures.

12.   The method as claimed in claim 11 wherein the step c) of transforming the neutral-corrected electronically captured images with a linear function that emulates a film exposure of the film reproduction system is performed with a matrix that is determined by regressing the neutrally-corrected electronic camera exposures against the film exposures, thereby producing exposure-corrected electronic camera exposures.

13.   The method as claimed in claim 12 wherein the step d) of transforming the exposure-corrected electronically captured images with a non-

linear function that renders the exposure-corrected electronically captured images with a tone scale of the film reproduction system is performed with a look up table that is determined by mapping the exposure-corrected electronic camera exposures to channel-independent printing densities corresponding to the scanned film densities, thereby resulting in tonescale-corrected electronic camera values.

14.   The method as claimed in claim 13 wherein the step e) of transforming the tonescale-corrected electronically captured images with a linear function that emulates a film color look provided by the film reproduction system is performed with a matrix that is determined by regressing the tonescale-corrected electronic camera values against the scanned film densities.

15.   A method for converting a sequence of electronically captured images into a sequence of modified images providing the appearance of images captured by a film reproduction system, the film reproduction system being of the type that includes a motion picture negative film printed onto a motion picture print film that is displayed, or a reversal motion picture system in which a reversal film is displayed, said method comprising the steps of:

a) electronically capturing a sequence of images, resulting in electronically captured image data;

b) transforming the electronically captured image data into linearized exposure data, resulting in neutral-corrected electronically captured images;

c) transforming the neutral-corrected electronically captured images with a non-linear function that renders the neutral-corrected electronically captured images with a tone scale of the film reproduction system, resulting in tonescale-corrected electronically captured images; and

d) transforming the tonescale-corrected electronically captured images with a linear function that emulates a film color look provided by the film reproduction system, resulting in modified images that provide the appearance of an image captured with the film reproduction system, whereby the transformation

steps are referenced to scanned film densities of a film used in the film reproduction system.

16. The method as claimed in claim 15 wherein the step b) of transforming the electronically captured image data into linearized exposure data includes reversing any nonlinearities applied to the electronically captured image data.

17. The method as claimed in claim 15 wherein the steps of a) electronically capturing a sequence of images, resulting in electronically captured image data, and b) transforming the electronically captured image data into linearized exposure data includes providing the linearized exposure data from an electronic camera that captured the sequence of motion images.

18. The method as claimed in claim 15 further comprising the step of recording the modified images on film.

19. The method as claimed in claim 15 further comprising the step of displaying the modified images with a display.

20. The method as claimed in claim 15 wherein the modified images are color-balanced before subsequent utilization by balancing a reference neutral to a predetermined scanner density value, resulting in modified images.

21. A method for converting a sequence of electronically captured images into a sequence of modified images providing the appearance of images captured by a film reproduction system, the film reproduction system being of the type that includes a motion picture negative film printed onto a motion picture print film that is displayed, or a reversal motion picture system in which a reversal film is displayed, said method comprising the steps of:

a) electronically capturing a sequence of images, resulting in linearized neutral-corrected electronically captured image data;

b) transforming the neutral-corrected electronically captured images with a non-linear function that renders the neutral-corrected electronically captured images with a tone scale of the film reproduction system, resulting in tonescale-corrected electronically captured images; and

c) transforming the tonescale-corrected electronically captured images with a linear function that emulates a film color look provided by the film reproduction system, resulting in modified images that provide the appearance of an image captured with the film reproduction system, whereby the transformation steps are referenced to scanned film densities of a film used in the film reproduction system.

22. The method as claimed in claim 21 further comprising the step of recording the modified images on film.

23. The method as claimed in claim 21 further comprising the step of displaying the modified images with a display.

24. A system for converting a sequence of electronically captured images into a sequence of modified images providing the appearance of images captured by a film reproduction system, the film reproduction system being of the type that includes a motion picture negative film printed onto a motion picture print film that is displayed, or a reversal motion picture system in which a reversal film is displayed, said system comprising:

an electronic capture device for capturing a sequence of images, resulting in electronically captured image data;

a first non-linear processor for transforming the electronically captured image data into linearized exposure data, resulting in neutral-corrected electronically captured images;

a first linear processor for transforming the neutral-corrected electronically captured images with a linear function that emulates a film exposure of the film reproduction system, resulting in exposure-corrected electronically captured images;

a second non-linear processor for transforming the exposure-corrected electronically captured images with a non-linear function that renders the exposure-corrected electronically captured images with a tone scale of the film reproduction system, resulting in tonescale-corrected electronically captured images; and

a second linear processor for transforming the tonescale-corrected electronically captured images with a linear function that emulates a film color look provided by the film reproduction system, resulting in modified images that provide the appearance of an image captured with the film reproduction system, whereby the transformation steps are referenced to scanned film densities of a film used in the film reproduction system.

25. The system as claimed in claim 24 wherein the first and second non-linear processors involve the application of look up tables and the first and second linear processors involve the application of matrices.

26. The system as claimed in claim 24 wherein the first non-linear processor is arranged to reverse nonlinearities applied to the electronically captured image data.

27. The system as claimed in claim 24 further comprising a film recorder for recording the modified images on film.

28. The system as claimed in claim 24 further comprising a display for displaying the modified images.

29.   The system as claimed in claim 28 in which the display comprises an electro-optical display including at least one of a digital projector, a television display, a video projector, a liquid crystal display or a laser projector.

30.   The system as claimed in claim 24 further comprising a color timer stage for color-balancing the modified images before their subsequent utilization by balancing a reference neutral to a predetermined scanner density value, resulting in modified images.

31.   The system as claimed in claim 30 further comprising a recorder for recording the modified images on film.

32.   The system as claimed in claim 30 further comprising a display for displaying the modified images.

33.   The system as claimed in claim 32 in which the display comprises an electro-optical display including at least one of a digital projector, a television display, a video projector, a liquid crystal display or a laser projector.